

Application No.: 10/074,600  
Filed: February 12, 2002  
TC Art Unit: 2157  
Confirmation No.: 4837

REMARKS

The foregoing Amendment is filed in response to the official action dated September 4, 2007. Reconsideration is respectfully requested.

The status of the claims is as follows:

Claims 1, 3-4, 6-9, 11-12, and 14-18 are currently pending.

Claims 1, 3-4, 6-9, 11-12, and 14-18 stand rejected.

Claims 1-2, 6-7, 9-10, and 14-15 have been amended.

Claims 17-18 have been canceled without prejudice.

The Examiner has rejected claims 1, 3-4, 6-12, and 14-18 under 35 U.S.C. 103(a) as being unpatentable over Khansari et al. (USP 6,446,131) in view of Tomizawa et al. (USP 6,598,092). The Applicants respectfully submit, however, that base claims 1 and 9, as amended, and the claims depending therefrom, recite non-obvious subject matter that distinguishes over the art of record, and therefore the rejections of claims 1, 3-4, 6-12, and 14-18 under 35 U.S.C. 103 should be withdrawn.

For example, amended base claim 1 recites a data communications network that includes a plurality of data communications rings including a first ring, a second ring, and a third ring, at least one first node coupled to the first ring, at least one second node coupled to the second ring, a first bridge

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for linking the first ring to the second ring, and a second bridge for linking the second ring to the third ring. At least one of the first nodes coupled to the first ring corresponds to a first end station, which has an associated address. In addition, each of the first and second bridges has an associated identifier, and at least the second ring is configured for spatial reuse.

As recited in amended base claim 1, the second bridge is operative to receive at least one packet, in which the received packet includes an ingress identifier, an egress identifier, and a source end station address. The second bridge is further operative, in a learning mode, to analyze the ingress identifier of the received packet to determine whether the ingress identifier corresponds to the first bridge identifier, to analyze the source end station address of the received packet to determine whether the source end station address corresponds to the first end station address, and, in the event the ingress identifier and the source end station address of the received packet correspond to the first bridge identifier and the first end station address, respectively, to learn an association between the first bridge and the first end station coupled to the first ring.

In addition, upon receiving a packet destined for the first end station, the second bridge is operative to, (i) in the event

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the association between the first bridge and the first end station coupled to the first ring has not yet been learned, to forward, on the second ring, the received packet as a broadcast transmission in a manner indicating that the packet is to be examined by the first bridge and each second node coupled to the second ring, and, (ii) in the event the association between the first bridge and the first end station coupled to the first ring has been learned, to make the egress identifier of the received packet correspond to the first bridge identifier, to forward, on the second ring, the received packet as a unicast transmission from the second bridge to the first bridge, and to remove, at the first bridge, the received packet from the second ring to permit spatial reuse of the second ring, as recited in amended base claim 1.

In response to the arguments presented in the Applicant's prior response filed June 19, 2007, the official action indicates on page 6 that, with reference to Fig. 2b of Khansari et al., a unicast packet received at the Bridge 3 and destined for the node 26 is forwarded through the port A3 to the Bridge 1 and then to the node 26. The official action further indicates that, with reference to Fig. 2b of Khansari et al., a unicast packet received at the Bridge 2 and destined for the node 24 is sent through the port B2 to the Bridge 1 and then delivered to the node 24. Based

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upon the above purported functionality of the Khansari apparatus, the official action concludes that Khansari et al. teach forwarding the received packet as a unicast transmission to the first bridge on the network, in the event the association between the first bridge and the end station has been learned.

The Applicants respectfully submit, however, that the official action has not taken into account all of the limitations of amended base claim 1. For example, the official action has not taken into account the limitations, in the event the association between the first bridge and the first end station coupled to the first ring has been learned, to make the egress identifier of the received packet correspond to the first bridge identifier, to forward, on the second ring, the received packet as a unicast transmission from the second bridge to the first bridge, and to remove, at the first bridge, the received packet from the second ring to permit spatial reuse of the second ring, as recited in amended claim 1. The Applicants respectfully submit that the Khansari reference neither teaches nor suggests the above limitations recited in amended claim 1.

For example, with reference to column 4, line 51, to column 5, line 45, and Fig. 2b, of Khansari et al., the Khansari reference teaches that each of the Bridges 1, 2, and 3 are aware

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of the first node 24. Specifically, the upper port A1 of the Bridge 1, the lower port B2 of the Bridge 2, and the upper port A3 of the Bridge 3 are each associated with the first node 24. As taught by Khansari et al., the second node 26 places a frame destined for the first node 24 on the second LAN segment 20, and the Bridge 1 receives the frame on its lower port B1. Because the first node 24 is associated with the upper port A1 of the Bridge 1, the Bridge 1 forwards the frame to its upper port A1, and the frame reaches the first node 24 via the first LAN segment 18.

Significantly, the Khansari reference provides no hint that the egress identifier of the frame is made to correspond to the identifier of any Bridge different from the Bridge 1. As recited in amended base claim 1, upon receiving a packet destined for the first end station, the second bridge is operative to, in the event the association between the first bridge and the first end station coupled to the first ring has been learned, to make the egress identifier of the received packet correspond to the first bridge identifier. In addition, the Khansari reference provides no hint that the frame is to be forwarded as a unicast transmission from the Bridge 1 to any other Bridge. As recited in amended claim 1, the second bridge is operative to forward, on the second ring, the received packet as a unicast transmission from the second bridge

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to the first bridge in response to making the egress identifier of the received packet correspond to the first bridge identifier. Unlike the recitation of amended claim 1, the Khansari reference teaches that the frame is merely forwarded from the Bridge 1 to the first node 24 via the first LAN segment 18, without encountering any other Bridges. Accordingly, the Applicants respectfully submit that this first example of Khansari et al. fails to disclose all of the limitations of amended claim 1.

With further reference to column 4, line 51, to column 5, line 45, and Fig. 2b, of Khansari et al., the Khansari reference teaches that the Bridge 2 receives the frame destined for the first node 24 on its lower port B2. Next, the Bridge 2 determines that the port to which the frame should be forwarded is its lower port B2, since the lower port B2 of the Bridge 2 is associated with the first node 24, as discussed above. However, because the port to which the frame should be forwarded (the lower port B2) is the same port on which the frame was received, the Bridge 2 merely discards the frame. Like the Bridge 1, the Bridge 2 does not forward the frame as a unicast transmission to any other Bridge. Accordingly, the Applicants respectfully submit that this second example of Khansari et al. fails to disclose all of the limitations of amended claim 1.

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With still further reference to column 4, line 51, to column 5, line 45, and Fig. 2b, of Khansari et al., the Khansari reference teaches that the frame arrives at the upper port A3 of the Bridge 3. Next, the Bridge 3 determines that the port to which the frame should be forwarded is its upper port A3, since the upper port A3 of the Bridge 3 is associated with the first node 24, as discussed above. However, because the port to which the frame should be forwarded (the upper port A3) is the same port on which the frame was received, the Bridge 3 does not forward the frame. Like the Bridges 1 and 2, the Bridge 3 does not forward the frame as a unicast transmission to any other Bridge. Accordingly, the Applicants respectfully submit that this third example of Khansari et al. fails to disclose all of the limitations of amended claim 1. The Applicants further submit that the Tomizawa reference fails to cure these deficiencies of the Khansari reference.

An important advantage is derived from the data communications network recited in amended base claim 1, namely, the ability to perform a "directed bridging" technique (see page 6, lines 27-30, of the application). As described in the present application, the data communications network of amended claim 1 employs the directed bridging technique to make the egress

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identifier of a received packet correspond to the first bridge identifier, to forward the received packet as a unicast transmission from the second bridge to the first bridge, and to remove, at the first bridge, the received packet from the second ring to permit spatial reuse of the second ring, once the association between the first bridge and the first end station has been learned by the second bridge. The Applicants respectfully point out that the unicast transmissions performed by the data communications network of amended claim 1 take place from the second bridge to the first bridge, i.e., from bridge-to-bridge. The first bridge then forwards the packet to its intended destination, i.e., the first end station. In this way, the data communications network of amended claim 1 exploits the spatial reuse capability of data communications rings, performing unicast transmissions wherever possible to reduce the need for bandwidth-wasting broadcast transmissions (see page 6, lines 27-30, of the application). As explained above, neither the Khansari reference nor the Tomizawa reference explicitly teaches or suggests such functionality.

Because neither the Khansari reference nor the Tomizawa reference discloses at least the limitations, in the event the association between the first bridge and the first end station

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coupled to the first ring has been learned, to make the egress identifier of the received packet correspond to the first bridge identifier, to forward, on the second ring, the received packet as a unicast transmission from the second bridge to the first bridge, and to remove, at the first bridge, the received packet from the second ring to permit spatial reuse of the second ring, as recited in amended base claim 1, the Applicants respectfully submit that the combined teachings of the Khansari and Tomizawa references would not suggest to one of ordinary skill in this art at the time of the invention the subject matter of amended claim 1 and the claims depending therefrom. For at least the reasons discussed above with reference to amended claim 1, the Applicants further submit that the combined teachings of the Khansari and Tomizawa references would not suggest to one skilled in this art at the time of the invention the subject matter of amended base claim 9 and the claims depending therefrom. Accordingly, it is respectfully submitted that the rejections of claims 1, 3-4, 6-12, and 14-18 under 35 U.S.C. 103 should be withdrawn.

In view of the foregoing, it is respectfully submitted that the present application is in a condition for allowance. Early and favorable action is respectfully requested.

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The Examiner is encouraged to telephone the undersigned Attorney to discuss any matter that would expedite allowance of the present application.

Respectfully submitted,

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